

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2004/010270

International filing date (day/month/year)
13.07.2004

Priority date (day/month/year)
16.07.2003

International Patent Classification (IPC) or both national classification and IPC
C08G14/00, G03F7/023

Applicant
TOKYO OHKA KOGYO CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/JP2004/010270**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/010270

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-5
Inventive step (IS)	Yes: Claims	
	No: Claims	1-5
Industrial applicability (IA)	Yes: Claims	1-5
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

PCT/JP2004/010270

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Re Item V**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: EP-A-0 677 789 (FUJI PHOTO FILM CO LTD) 18 October 1995 (1995-10-18)
D2: EP-A-0 650 091 (SUMITOMO CHEMICAL CO) 26 April 1995 (1995-04-26)
D3: US-B-6 187 5001 (DOI KOUSUKE ET AL) 13 February 2001 (2001-02-13)

- 2.1 The expression "in which a portion of hydrogen atoms of all phenolic hydroxyl groups are substituted" is understood in the sense that the phenolic hydroxyls do not all have to be substituted. Since the words "portion" and the word "all" are inconsistent with one another, the applicant is advised to reformulate this expression in the claims where it is used so as to remove said inconsistency.
- 2.2 It is also not clear whether the compound labelled "dissolution promotor" is part of the novolak resin. If said dissolution promoters are being used to prepare the novolak resin, then they are also considered as being comprised in the positive photoresist composition of the application.
- 2.3 It appears that the photosensitizer of claim 3 can also be one of the compounds (b-1) or (b-11). If the photosensitizer of claim 3 should be a different compound, it should be mentioned explicitly in claim 3 that the photosensitizer should be different from compounds (b-1) and (b-11) of claim 1.
3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-5 is not new in the sense of Article 33(2) PCT.
- 3.1 D1 discloses a photoresist composition comprising a novolak (D1, page 3, line 55 - page 4, line 34; page 9, lines 33-57) with phenolic hydroxyl groups substituted with

1,2-naphthoquinonediazidosulfonyl groups (D1, page 11, line 11). D1 (Page 6-8; page 12, structures 13-15) further mentions the use of phenolic compounds corresponding with the structure of compound (b-11) of claim 1 of the present application.

Hence, the subject-matter of claims 1-5 is not new.

- () 3.2 D2 discloses a photoresist composition comprising a novolak resin (D2, page 2, line 26 - page 3, line 21), novolac type phenolic hydroxyl groups substituted with 1,2-quinonediazide compounds (page 3, line 22 - page 5, line 9) and a compound (D2, examples 1-3, Table 4) corresponding with the structure of compound (b-1) of claim 1 of the present application.

Hence, the subject-matter of claims 1-5 is not new.

- 3.3 D3 discloses a composition comprising an alkali-soluble novolak (D3, column 6, line 5 - column 8, line 2), a naphthoquinonediazide compound (D3, column 8, lines 5-50) and a sensitizer (D3, column 8, line 51 - column 9, line 17; examples 1-9)

Hence, the subject-matter of claims 1-5 is not new.

- () 4. Since the Applicant has not provided information concerning the contribution to the existing state of the art of eventual remaining novel subject-matter, inventive step of such subject-matter cannot be accepted. The subject-matter of claims 1-5 is thus considered as an obvious alternative of the subject-matter disclosed in documents D1-D3.

The present application therefore cannot be considered as involving an inventive step (Article 33(3) PCT).